

Arizona's Instrument to Measure Standards (AIMS HS)

Student Guide



Arizona Department of Education
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Assessment Section
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AIMS HS FAQ

What is AIMS HS?

Arizona's Instrument to Measure Standards (AIMS) is an assessment program that measures your achievement of the Arizona Academic Standards adopted by the state Board of Education in three subject areas: Reading, Writing, and Mathematics.

Who has to take AIMS HS?

All students in grades 3 – 8 and high school are required to participate in AIMS testing. The AIMS HS test will be only one of the requirements for a diploma. Testing conditions may be modified or adapted for some special needs students according to their Individual Education Plans (IEPs). **High school students must pass the AIMS HS by 2006 in Reading, Writing, and Mathematics as a graduation requirement.**

When will I take AIMS HS?

You will take the tests for the first time in the spring of your sophomore year. You must retake those tests you do not pass each time the test is given (once each semester). If you do not pass any one of the three tests, you will have the opportunity to retake the **test(s) you did not pass** in the fall and/or spring of your junior year, and in the fall and/or spring of your senior year (5 tries altogether).

Those students who *meet* the Standards, but wish to *exceed* the Standards are encouraged to retake only the AIMS portions needed to improve their scores.

What will be tested on AIMS HS?

Test items were written to measure specifically the Standards, Concepts, and Performance Objectives described in the Arizona Academic Standards. Standards were Articulated by Grade Level for Reading and Mathematics and approved by the state Board of Education in March 2003. Reading and Mathematics items are multiple choice. There will be no multiple-choice questions on the writing test. Writing was Articulated by Grade Level and approved by the state Board of Education in June 2004. There will be an Extended Writing Prompt that students will use to actively engage in the writing process. Your writing will be scored using the Six Trait™ Model Rubric.

Each of the Standards is built on a structured framework that spans kindergarten to twelfth grade, representing concepts and skills you have been learning since starting school. Within these Standards are the Concepts and Performance Objectives that are specific to each grade level. Although all Standards (Reading, Writing and Mathematics) are assessed each time AIMS is given, different Concepts and Performance Objectives are tested on different forms of the tests. Therefore, you need to be prepared for **all** Concepts and Performance Objectives in each Standard.

How can I use this guide to prepare for AIMS HS?

This guide is divided into the three subject areas assessed on AIMS. It includes a short explanation of each testing format, hints for test taking, sample test questions, and a scoring guide for the written response. It will NOT teach you what you should know and be able to do to score well on the tests, but it will help you become familiar with the tests.

How can I prepare for AIMS HS?

- Attend school regularly.
- Thoroughly read and become familiar with the Arizona's Academic Standards documents so that you understand exactly what you are expected to know and be able to do.
- Ask questions.
- Take charge of your own learning! Monitor your progress. Self-assess what you know, what you can do well, and where you need to improve.
- Actively participate in class.
- Have a scheduled time and place to study and do homework.

Types of Items

MULTIPLE-CHOICE

Multiple-choice items will require you to select the BEST response from four possible answer choices and indicate your choice by bubbling in the corresponding letter on an answer sheet. Although some responses will require a recall of facts or the computation of a correct answer, many of the items will require higher-level thinking and processing. Each multiple-choice item is scored either correct (1 point) or incorrect (0 points) and represents one point in the overall score.

EXTENDED WRITING RESPONSE

The extended response item will ask you to respond to a prompt, which might include a narrative, a persuasive essay, an expository essay, or formal communication. These responses will require a well-developed and well-organized presentation of ideas that follow a particular format suitable to the purpose and audience. You will be expected to develop your written response by following the steps in the writing process: prewriting, drafting, revising, editing, and producing a final copy. You will be provided with a revision checklist to guide your work. Your finished copy, not your prewriting or rough draft, will be scored using a six-point rubric that scores each trait or characteristic of effective writing. The Official Scoring Guide is provided at the end of this document.

READING

Reading is fundamental to all learning and supports us as lifelong learners. It can open our minds to people, places, and ideas beyond our own experiences. It gives us the knowledge we need to make informed choices as responsible citizens in a democratic society. One needs only to browse the Internet to realize how much information is available to us at our fingertips. Understanding what we read, using the wealth of information available to us, and thinking critically about what we read are crucial skills to function successfully in today's world.

ABOUT THE TEST

On AIMS, you will be given several passages to read, both fiction and nonfiction. You may also be given informational text to read – for example, labels, and pages from manuals. The questions will assess your ability to understand, interpret, and analyze what you have read. There are approximately 60 multiple-choice items on the Reading test, which should be completed in 1-2 hours. One sample passage is provided in this guide, followed by a set of questions. Reading this passage and answering the questions may help you prepare for the test. An answer key for the Reading questions is included in this guide.

HINTS FOR TAKING AIMS HS-READING

- You will be asked to read different types of fiction and nonfiction, so adjust your reading to your purpose. Read each passage and the accompanying questions carefully.
- In the multiple-choice questions, choose the **best** response to the question.
- Think about each question before you respond.
- Manage your time so that you won't feel rushed answering questions that require more thought. Again, this is not a timed test, but you do want to use your time well.

Copperton Community Foundation

3489 Mesquite Boulevard Copperton, AZ 34566 (888) 293-3151

Volunteer Leadership Scholarship

Scholarship Criteria

The Copperton Community Foundation (CCF) awards three \$1000 scholarships each year. The CCF is a group of citizens dedicated to promoting education, improving our country, and recognizing outstanding examples of citizenship. The scholarships are available to Copper County high school seniors who have established an exceptional pattern of volunteer service.

Applicants are expected to enroll in either a full-time, approved technical training program or in an approved community college or university for at least nine credit hours. Applicants must provide an official copy of their registration. Recipients must complete the classes in which they enroll.

All eligible applications will be considered. Twelve semifinalists will be notified by telephone two weeks before the final interviews. The selection committee will conduct interviews in late April and announce the award winners in early June.

Award winners may renew their scholarships for each of the following three years of education. Renewal requires maintaining a 3.0 grade point average and performing at least forty hours of volunteer service during the calendar year. Award recipients must provide official transcripts, registration information, and confirmation of their volunteer service activities.

The Copperton Community Foundation Committee will consider only those applications received before the first business day in April.

Application Procedure

1. Answer all questions on the application. Attach extra sheets if necessary.
2. Include two letters of recommendation in sealed, signed envelopes. One must be from the supervisor of a volunteer service activity in which you participated.
3. Mail the completed application, recommendation letters, and your most recent, official transcript to the committee at the above address.

Copperton Community Foundation

Application for the Volunteer Leadership Scholarship

Biographical Information (Please print legibly.)

Name (Last, First, and MI) _____

Parent/Guardian Name _____

Social Security Number _____ Phone Number _____

Current Address _____

City/State/Zip _____

School Attending _____

Volunteer Service Activities

On a separate sheet, please list and briefly describe your volunteer service activities during the past two years. Include your roles, responsibilities, and honors.

Essay

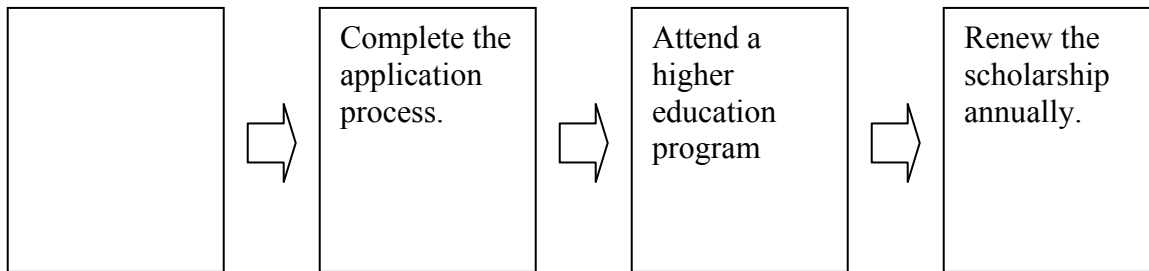
Select one of the following topics. Type and double-space your response. Use no more than three pages.

1. Describe a local or national leader whom you admire. What do you consider to be his or her greatest achievement or accomplishment? What qualities and traits do you see in this person that you wish to emulate?
2. Describe an experience from your own life and discuss how it has helped you grow as a leader. What significant lessons did you learn from the experience? How will you apply those lessons in your future?
3. Describe the three most important qualities of a leader and explain why they are essential for success. Cite present-day leaders to illustrate your viewpoint.

1. What is the purpose of the application?

- A to evaluate the essays
- B to identify school leaders
- C to screen potential recipients
- D to define the eligibility and screening process

2. Look at the graphic organizer.



Which option best completes the graphic organizer?

- A List your relevant biographical information.
- B Participate in volunteer service projects.
- C Conduct research about a national leader.
- D Obtain two letters of recommendation.

3. What is a requirement of the recommendation letters?

- A one must be from the volunteer's supervisor
- B one must describe the applicant as a leader
- C one must describe the community service
- D one must be from an academic advisor

4. Based on the Scholarship Criteria, what can the reader infer about the Copperton Community Foundation?

- A The foundation is concerned about student behavior.
- B The foundation values athletic and academic achievement.
- C The foundation is committed to encouraging good citizenship.
- D The foundation prefers students who excel in the arts.

5. Which section provides the most information about the Copperton Community Foundation?

- A Scholarship Criteria
- B Application Procedure
- C Biographical Information
- D Volunteer Service Activities

6. Which applicant would be MOST likely to be considered by the CCF?
- A a senior with limited leadership experience
 - B a junior with extensive volunteer experience
 - C a junior with extensive leadership experience
 - D a senior with extensive volunteer experience
7. What trait is the Copperton Community Foundation recognizing in its scholarship program?
- A generosity
 - B leadership
 - C courage
 - D Caring
8. How does the Copperton Community Foundation promote academic excellence through its scholarship program?
- A by requiring students to write essays
 - B by requiring applicants to reapply
 - C by requiring applicants to interview
 - D by requiring students to maintain a 3.0
9. What topic do all three essay options include?
- A national service
 - B volunteer service
 - C qualities of a leader
 - D attributes of success
10. What must an applicant do to renew the scholarship?
- A Complete at least 40 hours of community service.
 - B Maintain a 3.5 GPA.
 - C Maintain a part-time job.
 - D Complete a new application.
11. What should a completed application contain?
- A biographical information, double-spaced essay, community service list, two letters of recommendation, and list of honors
 - B two letters of recommendation, three double-spaced essays, community service list, unofficial transcript, and list of awards
 - C biographical information, double-spaced essay, community service list, two letters of recommendation, and official transcript
 - D two letters of recommendation, unofficial transcripts, community service list, three double-spaced essays, biographical information

Writing

Writing is a critical skill for effective communication. Whether you are writing an e-mail message, a personal letter, an ad for your business, or a formal report for school or work, being able to express your ideas clearly to your audience is important. Becoming a good writer is not easy. It takes effort and development of a variety of skills: clear ideas, organization, a voice that holds the interest of your audience, and a consistent control of language, including word choice, sentence structure, and conventions (spelling, grammar, punctuation, and capitalization). With new technology, it is possible to electronically communicate in writing with people all over the world in a matter of minutes. Writing will continue to be a communication skill that is required in most professions and workplace environments. Acquiring effective written communication skills will enhance both your personal and professional opportunities.

ABOUT THE TEST

You will be expected to write one extended writing piece on a specific topic. This writing test will be completed in one session, so all steps in the writing process, including revising, editing, and writing a final copy, will be done in that one session. The test should take approximately 2-3 hours to complete. An example of a writing prompt and scored student responses to this prompt are included. These may help you prepare for the test. A copy of the Official Scoring Guide is also included at the end of this guide.

Hints for taking AIMS HS – Writing

Prior to the test

- Read the three sample student responses to the prompt on the following pages. Note strengths and weaknesses in the paper as you read. Does the writer accomplish the task? Is the writer's message clear? Are the ideas supported with convincing evidence and support? Are the ideas organized so that you can logically follow them? Is the voice appropriate? Did the writer carefully choose words that are clear and convincing? Do the sentences have a natural flow? Is the sentence structure varied? Is the paper carefully edited?
- Discuss with other students and your teacher why one paper is stronger or more convincing than another.
- Practice writing a persuasive response to this sample prompt. Score your own paper using the Official Scoring Guide to determine what your strengths are, and then work on areas you need to improve to be a more effective writer.

During the test

- Listen to directions, read the prompt carefully, and be sure you understand the purpose before beginning to write.

- Take time to organize your thoughts before you begin to write. For the extended writing prompt, you may want to create a graphic organizer (outline, web, chart, map, cluster, etc.) to plan and organize your ideas.
- Take advantage of the opportunity to revise your work using the checklist provided. Keep in mind the six traits (characteristics) of effective writing.
- Edit your writing carefully. Your audience (the reader) needs to be able to understand the ideas you are expressing without being hindered by spelling, punctuation, capitalization, and grammar mistakes that interfere with the message. **You must be sure your handwriting is legible. Printing your work is acceptable; however, be sure to distinguish between upper- and lower-case letters. Do NOT print in all capital letters.**

Keep in mind...

- You will be given two pages in the answer document to write your final copy. It is important that you take advantage of the two pages you are given to develop your ideas fully. This is your opportunity to demonstrate how well you can write.
- Your final copy needs to be handwritten (not done on a computer).
- You may use a dictionary and/or thesaurus as a reference during the Extended Writing Response portion of the test.
- Be conscious of the traits, or characteristics, of effective writing (idea development, organization, voice, word choice, sentence fluency, and conventions) no matter what kind of writing you are asked to do. The same scoring guide, or rubric, will be used for all the types of writing you may be asked to compose: narrative, persuasive, expository, or formal communication.

The following four examples illustrate the scoring performed for the AIMS HS.

The first example is scored as “Falls Far Below.”

The second example is scored as “Approaches.”

The third example is scored as “Meets.”

The fourth example is scored as “Exceeds.”

Sample Prompt

Sample writing task:

Adults have influence on young people’s lives. Think about the qualities demonstrated by adults that you admire.

Write an essay explaining the most important qualities demonstrated by adults that you admire.

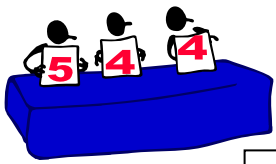
Sample 1

Writing

FINAL COPY

I admire my mom because she is really nice to me. I love my mom because she buyies me new clothes and some other new stuff. I look up for my mom alot. I really admire my mom alot because she takes me on trips to Disney land or to Six flags magic mountain to have a lots of fun.





SCORE SHEET FOR WRITING SAMPLE 1

PROMPT:

Adults have influence on young people's lives. Think about the qualities demonstrated by adults that you admire.
Write an essay explaining the most important qualities demonstrated by adults that you admire.

Paper FALLS FAR BELOW standard.

Ideas & Content

6 5 4 3 (2) 1

Organization

6 5 4 3 2 (1)

Voice

6 5 4 3 (2) 1

Word Choice

6 5 4 3 (2) 1

Sentence Fluency

6 5 4 3 (2) 1

Conventions

6 5 4 (3) 2 1

NOTE 1: The underlined passages are taken from the *Official Scoring Guide for AIMS Writing* (Six Trait Rubric).

NOTE 2: Papers are original samples of Arizona student writing. Identifying information has been removed.

Ideas and Content: Main ideas and purpose are somewhat unclear; development is attempted but minimal. The paper is too short to convey the intended message. **Score point is 2.**

Organization: Organization seems haphazard and disjointed. There is a lack of effective sequencing and a failure to provide an identifiable beginning, body, and ending. **Score point is 1.**

Voice: Writing has a lack of audience awareness and provides little sense of involvement with the topic. The faint voice tends to be overly personal. The writer refers to "my mom" and "nice to me" which has little meaning for a reader. **Score point is 2.**

Word Choice: The language is monotonous. The writer repeats the same words several times, such as "I," "because," and "a lot." **Score point is 2.**

Sentence Fluency: The writing tends to be rambling and sentence patterns are monotonous. All the writer's sentences begin with "I." **Score point is 2.**

Conventions: The writer demonstrates limited control of standard writing conventions. End of sentence punctuation is correct. There are errors in usage that distract the reader. For instance, "I look up for my mom." **Score point is 3.**

Sample 2

Writing

DIRECTIONS: Now write your final copy on the following two pages.

A

FINAL COPY

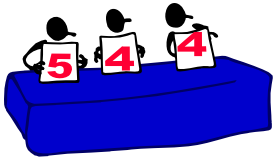
In today culture it is important for adults to demonstrate good qualities. One of the qualities that adults should is responsibility. Also they should show respect and compassion. These are all very important behaviors that adults should show.

The reason adults should show responsibility is because young people need to see how important being responsible is. If you see an adult not being responsible you may think that it is ok not to be responsible for your actions. That is why it is important for adults to show responsibility.

It is also important for adults to show respect. If you see an adult not respecting someone you may think it is ok to disrespect people. It is important to show respect for people because how would you feel if no one respected you. That is why it is important for adults to show respect.

Adults should also show compassion. It is important to feel strongly about some things. If adults did not show compassion there would be less sympathy in the world. That is why adults should show compassion.

That is why it is important for adults to show good qualities. They show us how we should act. That's all.



SCORE SHEET FOR WRITING SAMPLE 2

PROMPT:

Adults have influence on young people's lives. Think about the qualities demonstrated by adults that you admire.
Write an essay explaining the most important qualities demonstrated by adults that you admire.

Paper APPROACHES standard

<i>Ideas & Content</i> 6 5 4 <u>3</u> 2 1	<i>Organization</i> 6 5 4 <u>3</u> 2 1	<i>Voice</i> 6 5 4 <u>3</u> 2 1
<i>Word Choice</i> 6 5 <u>4</u> 3 2 1	<i>Sentence Fluency</i> 6 5 4 <u>3</u> 2 1	<i>Conventions</i> 6 5 <u>4</u> 3 2 1

NOTE 1: The underlined passages are taken from the *Official Scoring Guide for AIMS Writing* (Six Trait Rubric).

NOTE 2: Papers are original samples of Arizona student writing. Identifying information has been removed.

Ideas and Content: The reader understands the main ideas, although they are overly broad and simplistic. Supporting detail is limited, insubstantial, and overly general. The writer depends on generalizations such as "It is important to show respect for people..." that have no substance and add little to the content of the paper. **Score point is 3.**

Organization: Writing shows attempts at organization. The beginning is acceptable, but the conclusion is very weak. The same few transitional devices are overused: "also," "important," and "that is why." "That is all" is a conclusion that is too obvious. **Score point is 3.**

Voice: The writer's commitment to the topic seems inconsistent. The voice is inappropriately impersonal. The repetitive ending for each paragraph results in writing as somewhat mechanical. **Score point is 3.**

Word Choice: The words convey the meaning of the intended message. However, the words work but do not energize the writing. The writer uses some well-chosen words such as "compasion," "respect," and "sympathy," but they are used repetitively. **Score point is 4.**

Sentence Fluency: The writing tends to be mechanical rather than fluid. The writer creates sentences which, although functional, lack energy. Again, the repetition of the final sentence in each paragraph adds to the lack of energy. **Score point is 3.**

Conventions: The writer demonstrates control of standard writing conventions, although a wide range is not employed. Basically sound paragraph breaks are further evidence of standard convention use. **Score point is 4.**

Sample 3

Writing

A

DIRECTIONS: Now write your final copy on the following two pages.

FINAL COPY

When thinking of an adult with good qualities, I can't help but picture someone with many of the same qualities as my mom. I picture somebody that is trustworthy, respectful, loving, and so much more. My mom has an attitude towards life that makes everyone else smile.

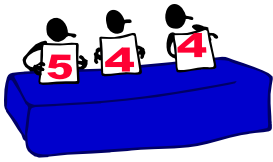
Being a trustworthy adult is very important. If we want to succeed in life it is a great quality to have. When people trust us in our workplace, or at home, we can learn to trust others. It is good to know others can confide in us when they have problems in their life. It may be a small problem or a big problem, but they should trust us to comfort them. Trust helps us keep faith in each other.

When my mom respects me she makes me feel important. She lets me know she wants to hear my ideas or thoughts. My mom respects the decisions I make in my life, whether they be good or bad, and lets me learn from my own mistakes. She has always been there to support or comfort me, no matter what the outcome of my decision. Although she is very respectful, she believes you have to give respect to earn it. Respect has always, and will always, be a big part of our lives.

Although respect and trust are great qualities for an adult to have, love is the most important quality. When adults show their love towards others it makes everyone feel

special. Knowing someone I admire loves me gives me a feeling of self-confidence. Adults should always show their love, even if it's just by saying, "I love you." If someone so special to me can love me back, it lets me know that there are great reasons for living.

My mom has always been someone I look up to. She has many great qualities that make her the most admirable adult in the world to me. She taught me her three most valuable qualities; to trust, to respect, and to love. Having these qualities has made her a respected adult. She has gone far in life, but having these qualities will only let her go further.



SCORE SHEET FOR WRITING SAMPLE 3

PROMPT:

Adults have influence on young people's lives. Think about the qualities demonstrated by adults that you admire.
Write an essay explaining the most important qualities demonstrated by adults that you admire.

Paper MEETS standard.

<i>Ideas & Content</i> 6 5 <u>4</u> 3 2 1	<i>Organization</i> 6 <u>5</u> 4 3 2 1	<i>Voice</i> 6 5 <u>4</u> 3 2 1
<i>Word Choice</i> 6 5 <u>4</u> 3 2 1	<i>Sentence Fluency</i> 6 <u>5</u> 4 3 2 1	<i>Conventions</i> 6 5 <u>4</u> 3 2 1

NOTE 1: The underlined passages are taken from the *Official Scoring Guide for AIMS Writing* (Six Trait Rubric).

NOTE 2: Papers are original samples of Arizona student writing. Identifying information has been removed.

Ideas and Content: The writing is clear and focused. The writer presents clear main ideas. Supporting details are relevant but are overly general or limited in places. For example, "When people trust us in our workplace, or at home, we can learn to trust others" is general and would be strengthened if the writer had presented a specific incident as support. **Score point is 4.**

Organization: Order and structure are strong with effective sequencing that enhances the development of the central idea. While the organization is formulaic, the inviting beginning ("When thinking of an adult...") draws the reader in. Transitions between paragraphs are clear but dependent on the formulaic organization. **Score point is 5.**

Voice: A voice is present. In places, the writing is expressive, engaging, and sincere. For instance, "Knowing someone I admire loves me gives me a feeling of self-confidence." is both engaging and sincere. **Score point is 4.**

Word Choice: Words effectively convey the message. The writer employs a variety of words that are functional and appropriate to audience and purpose. The words work, but do not always energize the writing. One notable exception is the last sentence in paragraph one: "My mom has an attitude toward life that makes everyone smile" is truly a fine moment. **Score point is 4.**

Sentence Fluency: The writing has an easy flow and rhythm. The writer employs a variation in sentence structure, length, and beginnings that add interest to the text. Sentences begin with subordinate clauses as often as they begin with a subject-verb construction. **Score point is 5.**

Conventions: The writer demonstrates control of standard writing conventions. Minor errors do not impede readability. Correct end of sentence punctuation is present. Internal punctuation may sometimes be incorrect. **Score point is 4.**

Sample 4

Writing

A

DIRECTIONS: Now write your final copy on the following two pages.

FINAL COPY

When thinking of an adult with good qualities, I can't help but picture someone with many of the same qualities as my mom. I picture somebody that is trustworthy, respectful, loving, and so much more. My mom has an attitude towards life that makes everyone else smile.

Being a trustworthy adult is very important. If we want to succeed in life it is a great quality to have. When people trust us in our workplace, or at home, we can learn to trust others. It is good to know others can confide in us when they have problems in their life. It may be a small problem or a big problem, but they should trust us to comfort them. Trust helps us keep faith in each other.

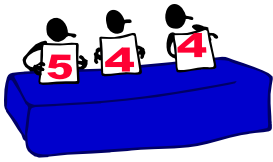
When my mom respects me she makes me feel important. She lets me know she wants to hear my ideas or thoughts. My mom respects the decisions I make in my life, whether they be good or bad, and lets me learn from my own mistakes. She has always been there to support or comfort me, no matter what the outcome of my decision. Although she is very respectful, she believes you have to give respect to earn it. Respect has always, and will always, be a big part of our lives.

Although respect and trust are great qualities for an adult to have, love is the most important quality. When adults show their love towards others it makes everyone feel

in a time when both Blacks and women were thought of as possessions a little more unruly than horses, she had the courage to learn and spread her message throughout the world in writing. It was her voice that gave encouragement to millions at the Million Man March, and it is through her voice, her accomplishments, that runs through my soul giving me strength to think what I choose. Undoubtedly, Maya Angelou is a hero of our time.

Although I find much strength and hope through the previous adults mentioned, there is one person who has always been there as a testimony of love and forgiveness, my mother. As a child my mother grew up in a household run by alcoholics and was abused by a repairman who often came to their home. Despite these obstacles, however, my mother found the strength to carry on and to start to trust once again. It was in and through herself she found healing. My only hope, my only desire, is that I to have that strength and forgiveness which nursed her back to health.

Out of all the adults, past and present, these are the chosen few I choose to admire. With every question and challenge I come upon I turn to them for hope, courage, and strength. It is through these astonishing men and women I am who I am today. It is through their qualities that the world is changed.



SCORE SHEET FOR WRITING SAMPLE 4

PROMPT:

Adults have influence on young people's lives. Think about the qualities demonstrated by adults that you admire.

Write an essay explaining the most important qualities demonstrated by adults that you admire.

Paper EXCEEDS standard.

<i>Ideas & Content</i> <u>6</u> 5 4 3 2 1	<i>Organization</i> 6 <u>5</u> 4 3 2 1	<i>Voice</i> <u>6</u> 5 4 3 2 1
<i>Word Choice</i> <u>6</u> 5 4 3 2 1	<i>Sentence Fluency</i> 6 <u>5</u> 4 3 2 1	<i>Conventions</i> <u>6</u> 5 4 3 2 1

NOTE 1: The underlined passages are taken from the *Official Scoring Guide for AIMS Writing* (Six Trait Rubric).

NOTE 2: Papers are original samples of Arizona student writing. Identifying information has been removed.

Ideas and Content: Main ideas stand out and are developed by strong support and rich details suitable to audience and purpose. The writer provides a thorough, balanced, in-depth explanation of the topic. One exemplary example of thorough support is "Dreams are what make everything progress. Without them, the human race would be stuck in an endless cycle of monotony. However, because one dared to dream, we live in a more accepting world today."

Score point is 6.

Organization: The organization enhances the central idea and its development. The writer uses effective transitions among all elements. While the beginning is a bit slow and somewhat formulaic, the writer employs a satisfying sense of resolution. The sequencing is effective. With a bit more creativity in organization, the paper would have scored a 6. **Score point is 5.**

Voice: The writing is expressive, engaging, and sincere. There is an exceptional sense of "writing to be read." The writer creates a sense of interaction through honesty and conviction. This paper has an effective level of closeness to the audience while maintaining a distance complimentary to the topic. **Score point is 6.**

Word Choice: The writer employs a rich, broad range of words such as "poke," "prod," "cycle of monotony," and "exemplary." The paper is fresh and original. The writer's word choices are exceptionally appropriate for audience and purpose. Vocabulary is striking and varied but is not overdone. **Score point is 6.**

Sentence Fluency: Sentences with strong and varied structure are prevalent. An occasional awkward construction may be noticed, however, sentence structure that enhances meaning emerges when the writer uses the short but effective "They prod." "They poke." "They observe." **Score point is 5.**

Conventions: The writing demonstrates strong control of standard writing conventions. Errors are so few and so minor that they do not impede readability. The writer includes paragraph breaks, correct capitalization, and correct spelling. Internal punctuation presents a little need for editing. **Score point is 5.**

MATHEMATICS

Mathematics is used as a means to communicate about quantities, logical relationships, and unknowns. Such a simplistic statement may make students who are not planning to go to college ask why mathematics is necessary for them.

While the ability to do computation is important, it is the skills of problem finding and problem solving, formalizing, abstract thinking, symbolic representation and interpretation, formulation of logical arguments, and objective reasoning that allow us to function effectively and understand our world.

Mathematics is the one area of coursework in the high school curriculum where students are taught these skills and where answers cannot be obtained just by common sense and guessing. Even without an every-increasing reliance on technology, mathematical skills meet needs for practical everyday life, intelligent citizenship, and future employment. A study by Arizona State University indicated that students who opt out of advanced levels of mathematics and science may now eliminate up to 75% of career opportunities from which to choose[†]. Algebra has been called the academic passport for passage into virtually every facet of the job market. Employers want their employees to be able to set up problems, estimate solutions, identify how accurate solutions need to be, work with other people to reach goals, know the many different types of mathematics that exist, and determine which one is needed in a particular situation. It is clear that the mathematical literacy of the twentieth century will NOT be sufficient for the twenty-first century.

[†]ASU Research, Fall, 1998, p. 41

ABOUT THE TEST

The mathematics test contains approximately 100 multiple-choice questions. Calculators are not allowed; however, the calculations required can be readily handled. The questions will emphasize conceptual understanding, process, and problem solving skills rather than just computation skills.

Hints for taking AIMS HS – Mathematics

- Remember, this is not a timed test. Take your time and do your best work.
- Since calculators are not allowed on this test, double-check your work!
- Check to see if your answer is reasonable.

Sample Items for **Mathematics**

What To Expect From This Section

This AIMS HS Student Guide for Mathematics provides examples of the format and types of items that will appear on AIMS HS Mathematics. An attempt has been made to provide a sampling of the types of questions that might be asked; however, not every concept in each standard has a corresponding sample item in this Guide. An answer key for all Mathematics sample items is provided in the appendices. Additionally, you will find an AIMS Reference Sheet in the appendices.

Strand 1: Number Sense and Operations

General concepts you should know:

- real number system and its various subsystems (natural, whole, integers, rationals, and irrationals);
- operations with positive and negative numbers;
- scientific notation; and
- estimation strategies.

1. Which of the following sets of numbers is not infinite?

- A. {natural numbers less than 8}
- B. {odd integers less than 8}
- C. {rational numbers less than 8}
- D. {real numbers less than 8}

2. What is the value of the expression below?

$$27 - (9 - 6)^2 \div 3$$

- A. 54
- B. 9
- C. 0
- D. -108

3. Eight friends went out to dinner together before prom. The restaurant adds a gratuity (tip) of 15% to the total for groups of 8 or more. The cost of the meals was \$270.40, including tax. Which amount is closest to the total cost of dinner, including the gratuity?

- A. \$325
- B. \$311
- C. \$284
- D. \$41

Strand 2: Data Analysis, Probability, and **Discrete Mathematics**

General concepts you should know:

- graphs (histograms, line graphs, circle graphs, box-and-whisker plots, frequency charts, stem-and-leaf plots, and scatter plots);
- measures of central tendency, variability and correlation (mean, median, mode, quartiles, and range);
- sample vs. census;
- biased vs. unbiased samples;
- pattern prediction;
- misuses of statistics;
- probability;
- positive and negative correlation;
- probable outcomes of events;
- systematic listing and counting; outcomes sets; and
- use of combinations vs. permutations.

4. The state of Arizona encompasses 113,642 sq. mi. of land and 364 sq. mi. of water. California encompasses 155,973 sq. mi. of land and 7,734 sq. mi. of water. Which matrix below represents these data?

A.
$$\begin{matrix} & \text{Land} & \text{Water} \\ \text{Arizona} & 7,734 & 155,973 \\ \text{California} & 364 & 113,642 \end{matrix}$$

B.
$$\begin{matrix} & \text{Land} & \text{Water} \\ \text{Arizona} & 155,973 & 7,734 \\ \text{California} & 113,642 & 364 \end{matrix}$$

C.
$$\begin{matrix} & \text{Land} & \text{Water} \\ \text{Arizona} & 113,642 & 364 \\ \text{California} & 155,973 & 7,734 \end{matrix}$$

D.
$$\begin{matrix} & \text{Land} & \text{Water} \\ \text{Arizona} & 113,642 & 7,734 \\ \text{California} & 155,973 & 364 \end{matrix}$$

5. The table below shows the median commuting distance to work (1-way) for given Arizona cities.

City	Median Commute (in miles)
Phoenix	8
Peoria	21
Chandler	15
Mesa	12

Based on the table, which of the following statements must be true?

- A. People from Mesa have the longest commute.
- B. All people from Phoenix commute at least 8 miles.
- C. More people commute from Peoria to Phoenix than from Phoenix to Peoria.
- D. At least half the population of Chandler has a commute of 15 or fewer miles.

6. Each of the events below is performed randomly. Which includes a dependent event?

- A. A card is drawn from a deck of playing cards, replaced in the deck, and a second card is drawn from the deck.
- B. A spinner with 8 congruent sectors is spun, the number is marked, and the spinner is spun again.
- C. A fair coin is flipped, the side it landed on is marked, and the coin is flipped again.
- D. Twenty differently numbered tiles are put into a bag. One tile is drawn, the number is marked, the tile is set aside, and a second tile is drawn.

7. The principal wants to read the list of candidates for prom queen. There are 6 candidates. How many ways can the principal introduce the candidates?

- A. 2160
- B. 720
- C. 21
- D. 6

Strand 3: Patterns, Algebra, and Functions

General concepts you should know:

- graphing, evaluating, simplifying, and solving linear equations and inequalities;
- real and rational roots;
- systems of linear equations;
- domain and range of equations; and
- graphical representations of functions (“vertical line” test).

8. Mrs. Herrera started a sequence of numbers by adding the first three terms to get the fourth term. Her first three terms were 3, 5, and 8, which gave 16 as the fourth term. To get each new term she added the three preceding terms. The first 5 terms of her sequence are below.

3, 5, 8, 16, 29, ...

Which of the following is the 7th term in her sequence?

- A. 45
 - B. 53
 - C. 98
 - D. 106
9. Jamal calculated that it costs \$0.43 per mile and \$4.00 per day to operate his car. If Jamal drives m miles over d days, which equation below expresses the cost, C , of driving the car, in terms of m and d ?
- A. $C = \$4.00d + \$0.43m$
 - B. $C = \$0.43d + \$4.00m$
 - C. $C = \$4.30d + \$4.00m$
 - D. $C = \$4.00d + \$4.30m$
10. Which value of y makes the proportion below true?

$$\frac{5}{-3+y} = \frac{8}{y+6}$$

- A. $y = 2$
- B. $y = 3$
- C. $y = 11$
- D. $y = 18$

11. What is the sum of the solutions for the quadratic equation below?

$$3x^2 + x - 2 = 0$$

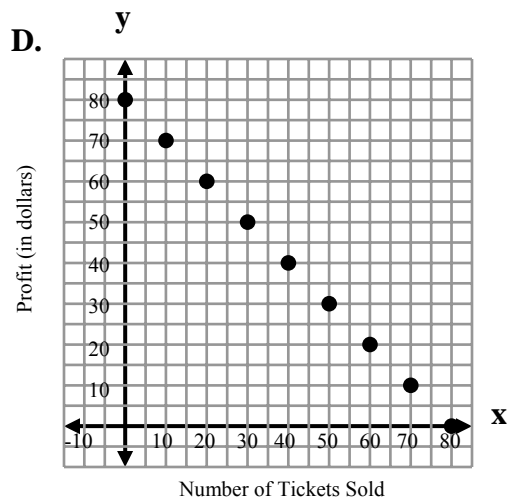
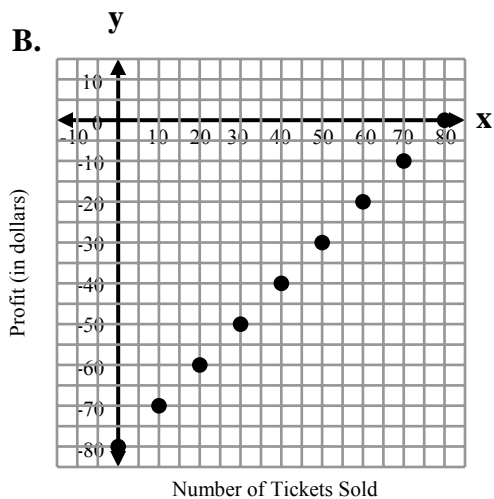
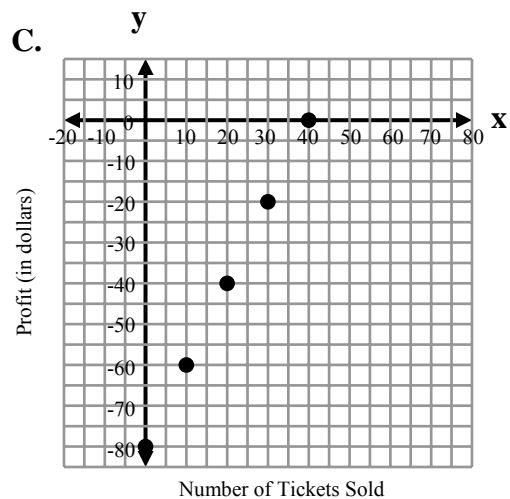
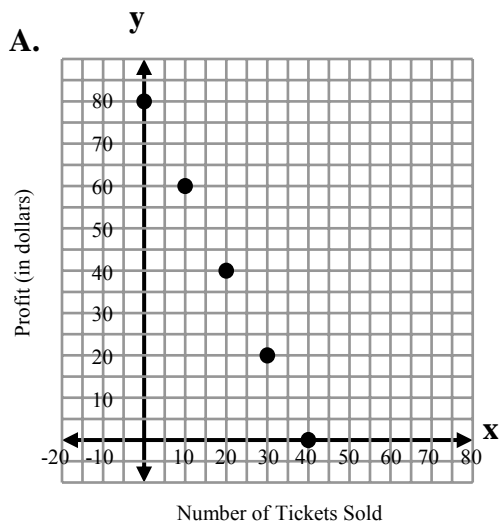
- A. $-1\frac{2}{3}$
- B. $-\frac{1}{3}$
- C. $\frac{1}{3}$
- D. $1\frac{2}{3}$

12. Given: $A = \begin{bmatrix} -5 & 3 \\ 4 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 \\ 0 & 7 \end{bmatrix}$

Which of the following is the sum, $2A + 3B$?

- A. $\begin{bmatrix} -4 & 3 \\ 8 & 15 \end{bmatrix}$
- B. $\begin{bmatrix} -16 & 9 \\ 8 & -27 \end{bmatrix}$
- C. $\begin{bmatrix} -16 & 9 \\ 12 & 5 \end{bmatrix}$
- D. $\begin{bmatrix} -4 & 3 \\ 4 & 4 \end{bmatrix}$

13. The student council at a school held a raffle using donated prizes. They spent \$80 for promotions and additional prizes. The tickets were sold for \$2 each. Which graph best represents their total profits as a function of the number of tickets sold?

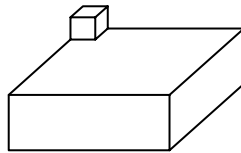


Strand 4: Geometry and Measurement

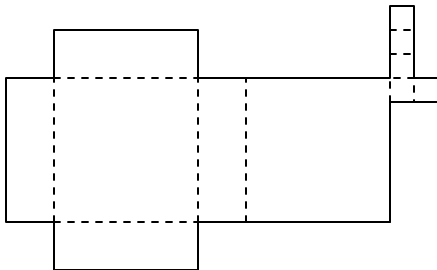
General concepts you should know:

- Pythagorean theorem;
- triangle characteristics (congruence and similarity relationships);
- angle characteristics (complementary, supplementary, and congruent);
- circle characteristics (arcs, chords, tangents, and secants);
- identification of prisms, pyramids, cones, cylinders, and spheres;
- coordinate plane characteristics (coordinates, distance and midpoint);
- transformations (reflections, rotations, dilations, translations; symmetry);
- appropriate units of measure, applications of techniques and formulas; and
- perimeter, area, volume; measuring line segments, lines, angles, 2-D and 3-D figures.

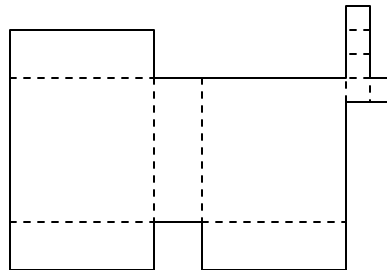
14. Which net below best represents the following object?



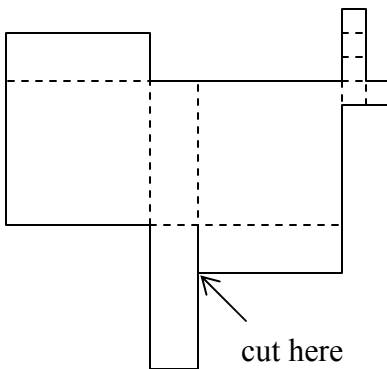
A.



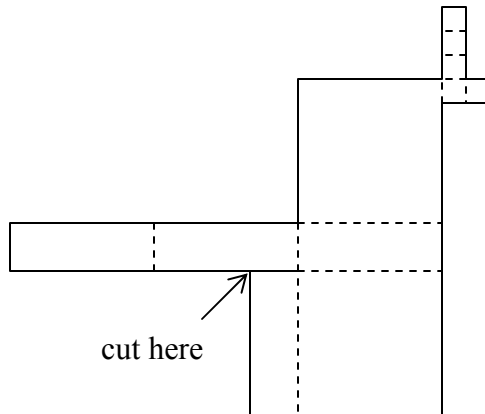
C.



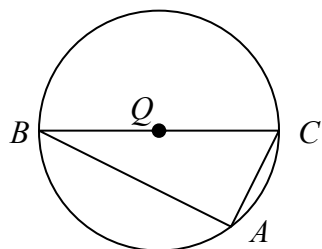
B.



D.



15. The points A, B, and C lie on circle Q below, in which \overline{BC} is a diameter.

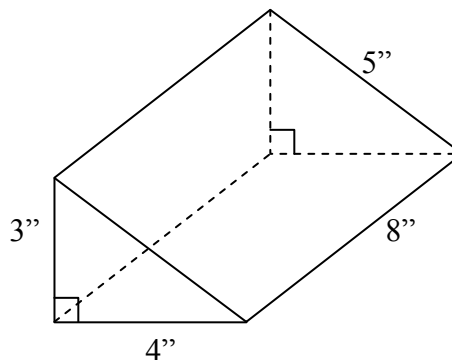


In circle Q, what is the measure of angle CAB, in degrees?

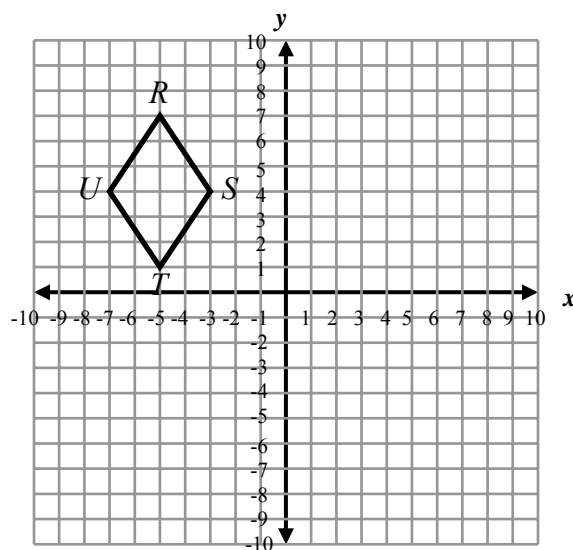
- A. 360°
 - B. 180°
 - C. 90°
 - D. 60°
16. What is the length of the line segment that has endpoints at $(-5, 3)$ and $(4, 5)$?

- A. $\sqrt{121}$
- B. $\sqrt{85}$
- C. $\sqrt{65}$
- D. $\sqrt{11}$

17. What is the surface area of the triangular prism represented below in square inches?



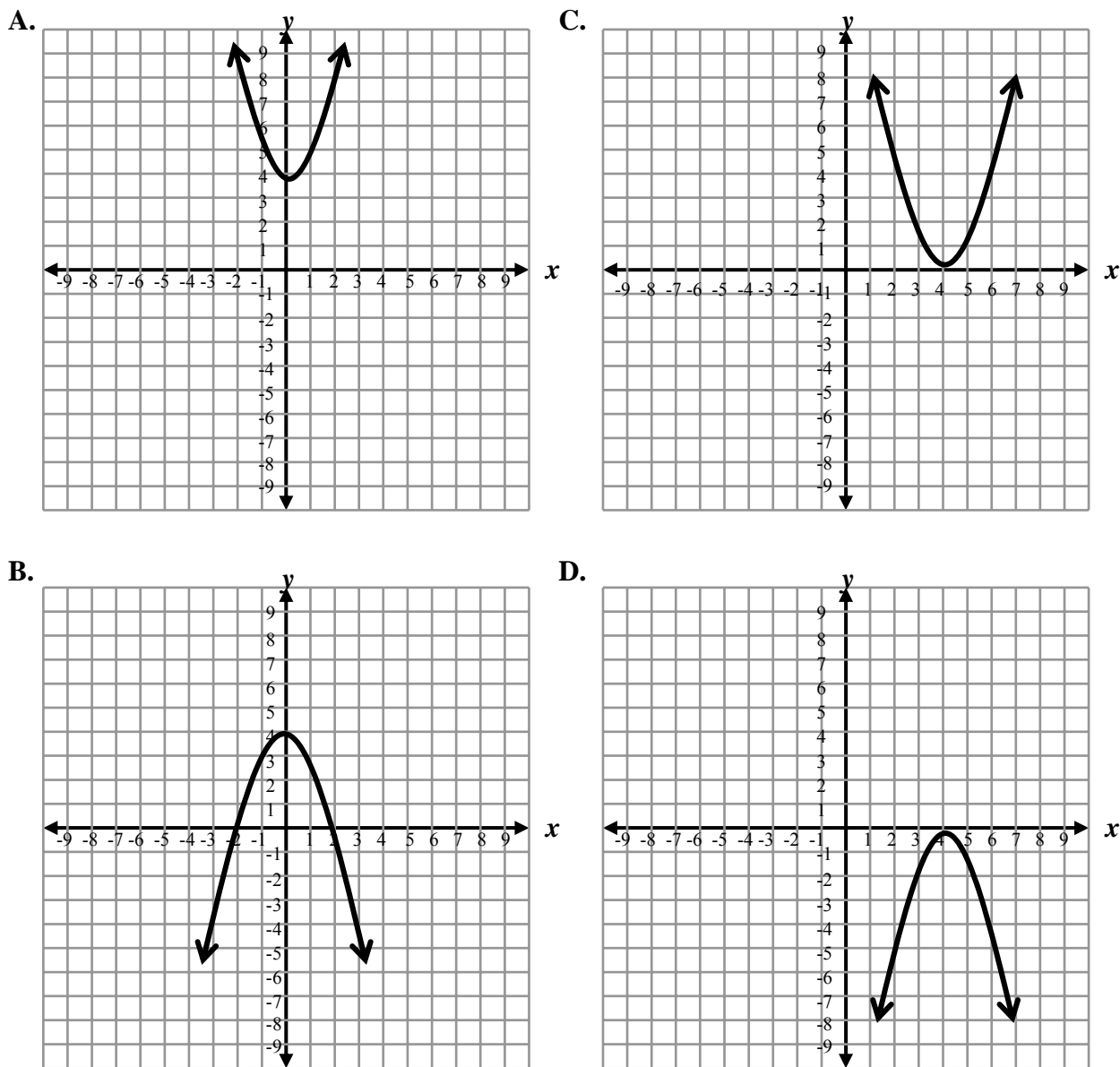
- A. 120 sq. in.
 - B. 108 sq. in.
 - C. 96 sq. in.
 - D. 48 sq. in.
18. What is the image of R when $\square RSTU$ is translated 3 units down and 6 units right?



- A. $(-1, 1)$
- B. $(1, -1)$
- C. $(1, 4)$
- D. $(4, 1)$

19. Which of the following represents the graph of the equation below?

$$y = x^2 + 4$$



Strand 5: Structure and Logic

General concepts you should know:

- inductive and deductive reasoning;
- conjectures; and
- validity of arguments.

20. Which of the following is a correct procedure for solving the equation below?

$$2(x - 6) - 12 = -3(x + 5)$$

A. $2(x - 6) - 12 = -3(x + 5)$

$$2x - 6 - 12 = -3x + 5$$

$$2x - 18 = -3x + 5$$

$$5x - 18 = 5$$

$$5x = 23$$

$$x = \frac{23}{5}$$

B. $2(x - 6) - 12 = -3(x + 5)$

$$2x - 12 - 12 = -3x + 15$$

$$2x = -3x + 15$$

$$5x = 15$$

$$x = 3$$

C. $2(x - 6) - 12 = -3(x + 5)$

$$2x - 12 - 12 = -3x - 15$$

$$2x - 24 = -3x - 15$$

$$5x - 24 = -15$$

$$5x = -39$$

$$x = \frac{39}{5}$$

D. $2(x - 6) - 12 = -3(x + 5)$

$$2x - 12 - 12 = -3x - 15$$

$$2x - 24 = -3x - 15$$

$$5x - 24 = -15$$

$$5x = 9$$

$$x = \frac{9}{5}$$

21. Let n be any irrational number. Which of the following is always true about $\frac{n}{2}$?

A. $\frac{n}{2}$ is a whole number

B. $\frac{n}{2}$ is an odd integer

C. $\frac{n}{2}$ is a prime number

D. $\frac{n}{2}$ is an irrational number

Scoring Keys

Reading Key

Question #1: D
Question #2: B
Question #3: A
Question #4: C
Question #5: A
Question #6: D
Question #7: B
Question #8: D
Question #9: C
Question #10: A
Question #11: C

Mathematics Key:

Question #1: A
Question #2: C
Question #3: B
Question #4: C
Question #5: D
Question #6: D
Question #7: B
Question #8: C
Question #9: A
Question #10: D
Question #11: B
Question #12: A
Question #13: C
Question #14: A
Question #15: C
Question #16: B
Question #17: B
Question #18: C
Question #19: A
Question #20: D
Question #21: D

NOTES:

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IDEAS and CONTENT

<p>6</p> <p>The writing is exceptionally clear, focused and interesting. It holds the reader's attention throughout. Main ideas stand out and are developed by strong support and rich details suitable to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • clarity, focus, and control. • main idea(s) that stand out. • supporting, relevant, carefully selected details; when appropriate, use of resources provides strong, accurate, credible support • a thorough, balanced, in-depth explanation/ exploration of the topic; the writing makes connections and shares insights. • content and selected details that are well suited to audience and purpose. 	<p>5</p> <p>The writing is clear, focused and interesting. It holds the reader's attention. Main ideas stand out and are developed by supporting details suitable to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • clarity, focus, and control. • main idea(s) that stand out. • supporting, relevant, carefully selected details; when appropriate, use of resources provides strong, accurate, credible support. • a thorough, balanced explanation/exploration of the topic; the writing makes connections and shares insights. • content and selected details that are well-suited to audience and purpose. 	<p>4</p> <p>The writing is clear and focused. The reader can easily understand the main ideas. Support is present, although it may be limited or rather general. The writing is characterized by</p> <ul style="list-style-type: none"> • an easily identifiable purpose. • clear main idea(s) • supporting details that are relevant, but may be overly general or limited in places; when appropriate, resources are used to provide accurate support. • a topic that is explored/explained, although developmental details may occasionally be out of balance with the main idea(s); some connections and insights may be present. • content and selected details that are relevant, but perhaps not consistently well chosen for audience and purpose.
<p>3</p> <p>The reader can understand the main ideas, although they may be overly broad or simplistic, and the results may not be effective. Supporting detail is often limited, insubstantial, overly general, or occasionally slightly off-topic. The writing is characterized by</p> <ul style="list-style-type: none"> • an easily identifiable purpose and main idea(s). • predictable or overly-obvious main ideas or plot; conclusions or main points seem to echo observations heard elsewhere. • support that is attempted; but developmental details that are often limited in scope, uneven, somewhat off-topic, predictable, or overly general. • details that may not be well-grounded in credible resources; they may be based on clichés, stereotypes or questionable sources of information. • difficulties when moving from general observations to specifics. 	<p>2</p> <p>Main ideas and purpose are somewhat unclear or development is attempted but minimal. The writing is characterized by</p> <ul style="list-style-type: none"> • a purpose and main idea(s) that may require extensive inferences by the reader. • minimal development; insufficient details. • irrelevant details that clutter the text. • extensive repetition of detail. 	<p>1</p> <p>The writing lacks a central idea or purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • ideas that are extremely limited or simply unclear. • attempts at development that are minimal or non-existent; the paper is too short to demonstrate the development of an idea.

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ORGANIZATION

<p>6</p> <p>The organization enhances the central idea(s) and its development. The order and structure are compelling and move the reader through the text easily. The writing is characterized by</p> <ul style="list-style-type: none"> • effective, perhaps creative, sequencing; the organizational structure fits the topic, and the writing is easy to follow. • a strong, inviting beginning that draws the reader in and a strong satisfying sense of resolution or closure. • smooth, effective transitions among all elements (sentences, paragraphs, and ideas). • details that fit where placed. 	<p>5</p> <p>The organization enhances the central idea(s) and its development. The order and structure are strong and move the reader through the text. The writing is characterized by.</p> <ul style="list-style-type: none"> • effective sequencing; the organizational structure fits the topic, and the writing is easy to follow. • an inviting beginning that draws the reader in and a satisfying sense of resolution or closure. • smooth, effective transitions among all elements (sentences, paragraphs, and ideas). • details that fit where placed. 	<p>4</p> <p>Organization is clear and coherent. Order and structure are present, but may seem formulaic. The writing is characterized by</p> <ul style="list-style-type: none"> • clear sequencing. • an organization that may be predictable. • a recognizable, developed beginning that may not be particularly inviting; a developed conclusion that may lack subtlety. • a body that is easy to follow with details that fit where placed. • transitions that may be stilted or formulaic. • organization which helps the reader, despite some weaknesses.
<p>3</p> <p>An attempt has been made to organize the writing; however, the overall structure is inconsistent or skeletal. The writing is characterized by</p> <ul style="list-style-type: none"> • attempts at sequencing, but the order or the relationship among ideas may occasionally be unclear. • a beginning and an ending which, although present, are either undeveloped or too obvious (e.g. “My topic is...”, “These are all the reasons that...”) • transitions that sometimes work. The same few transitional devices (e.g., coordinating conjunctions, numbering, etc.) may be overused. • a structure that is skeletal or too rigid. • placement of details that may not always be effective. • organization which lapses in some places, but helps the reader in others. 	<p>2</p> <p>The writing lacks a clear organizational structure. An occasional organizational device is discernible; however, the writing is either difficult to follow and the reader has to reread substantial portions, or the piece is simply too short to demonstrate organizational skills. The writing is characterized by</p> <ul style="list-style-type: none"> • some attempts at sequencing, but the order of the relationship among ideas is frequently unclear. • a missing or extremely undeveloped beginning, body, and/or ending. • a lack of transitions, or when present, ineffective or overused. • a lack of an effective organizational structure. • details that seem to be randomly placed, leaving the reader frequently confused. 	<p>1</p> <p>The writing lacks coherence; organization seems haphazard and disjointed. Even after rereading, the reader remains confused. The writing is characterized by</p> <ul style="list-style-type: none"> • a lack of effective sequencing. • a failure to provide an identifiable beginning, body, and/or ending. • a lack of transitions. • pacing that is consistently awkward; the reader feels either mired down in trivia or rushed along too rapidly. • a lack of organization which ultimately obscures or distorts the main point.

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VOICE

<p>6</p> <p>The writer has chosen a voice appropriate for the topic, purpose and audience. The writer seems deeply committed to the topic, and there is an exceptional sense of “writing to be read.” The writing is expressive, engaging, or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> • an effective level of closeness to or distance from the audience (e.g., a narrative should have a strong personal voice, while an expository piece may require extensive use of outside resources and a more academic voice; nevertheless, both should be engaging, lively, or interesting. Technical writing may require greater distance.). • an exceptionally strong sense of audience; the writer seems to be aware of the reader and of how to communicate the message most effectively. The reader may discern the writer behind the words and feel a sense of interaction. • a sense that the topic has come to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense. 	<p>5</p> <p>The writer has chosen a voice appropriate for the topic, purpose, and audience. The writer seems committed to the topic, and there is a sense of “writing to be read.” The writing is expressive, engaging or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> • an appropriate level of closeness to or distance from the audience (e.g., a narrative should have a strong personal voice while an expository piece may require extensive use of outside resources and a more academic voice; nevertheless, both should be engaging, lively or interesting. Technical writing may require greater distance.). • a strong sense of audience; the writer seems to be aware of the reader and of how to communicate the message most effectively. The reader may discern the writer behind the words and feel a sense of interaction. • a sense that the topic has come to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense. 	<p>4</p> <p>A voice is present. The writer demonstrates commitment to the topic, and there may be a sense of “writing to be read.” In places, the writing is expressive, engaging, or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> • a questionable or inconsistent level of closeness to or distance from the audience. • a sense of audience; the writer seems to be aware of the reader but has not consistently employed an appropriate voice. The reader may glimpse the writer behind the words and feel a sense of interaction in places. • liveliness, sincerity, or humor when appropriate; however, at times the writing may be either inappropriately casual or personal, or inappropriately formal and stiff.
<p>3</p> <p>The writer’s commitment to the topic seems inconsistent. A sense of the writer may emerge at times; however, the voice is either inappropriately personal or inappropriately impersonal. The writing is characterized by</p> <ul style="list-style-type: none"> • a limited sense of audience; the writer’s awareness of the reader is unclear. • an occasional sense of the writer behind the words; however, the voice may shift or disappear a line or two later and the writing become somewhat mechanical. • a limited ability to shift to a more objective voice when necessary. 	<p>2</p> <p>The writing provides little sense of involvement or commitment. There is no evidence that the writer has chosen a suitable voice. The writing is characterized by</p> <ul style="list-style-type: none"> • little engagement of the writer; the writing tends to be largely flat, lifeless, stiff, or mechanical. • a voice that is likely to be overly informal and personal. • a lack of audience awareness; there is little sense of “writing to be read.” • little or no hint of the writer behind the words. There is rarely a sense of interaction between reader and writer. 	<p>1</p> <p>The writing seems to lack a sense of involvement or commitment. The writing is characterized by</p> <ul style="list-style-type: none"> • no engagement of the writer; the writing is flat and lifeless. • a lack of audience awareness; there is no sense of “writing to be read.” • no hint of the writer behind the words. There is no sense of interaction between writer and reader; the writing does not involve or engage the reader.

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WORD CHOICE

<p>6</p> <p>Words convey the intended message in an exceptionally interesting, precise, and natural way appropriate to audience and purpose. The writer employs a rich, broad range of words, which have been carefully chosen and thoughtfully placed for impact. The writing is characterized by</p> <ul style="list-style-type: none"> • accurate, strong, specific words; powerful words energize the writing. • fresh, original expression; slang, if used, seems purposeful and is effective. • vocabulary that is striking and varied but that is natural and not overdone. • ordinary words used in an unusual way. • words that evoke strong images; figurative language may be used. 	<p>5</p> <p>Words convey the intended message in an interesting, precise, and natural way appropriate to audience and purpose. The writer employs a broad range of words which have been carefully chosen and thoughtfully placed for impact. The writing is characterized by</p> <ul style="list-style-type: none"> • accurate, specific words; word choices energize the writing. • fresh, vivid expression; slang, if used, seems purposeful and is effective. • vocabulary that may be striking and varied but that is natural and not overdone. • ordinary words used in an unusual way. • words that evoke clear images; figurative language may be used. 	<p>4</p> <p>Words effectively convey the intended message. The writer employs a variety of words that are functional and appropriate to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • words that work but do not particularly energize the writing. • expression that is functional; however, slang, if used, does not seem purposeful and is not particularly effective. • attempts at colorful language that may occasionally seem overdone. • occasional overuse of technical language or jargon. • rare experiments with language; however, the writing may have some fine moments and generally avoids clichés.
<p>3</p> <p>Language is quite ordinary, lacking interest, precision and variety, or may be inappropriate to audience and purpose in places. The writer does not employ a variety of words, producing a sort of “generic” paper filled with familiar words and phrases. The writing is characterized by</p> <ul style="list-style-type: none"> • words that work, but that rarely capture the reader’s interest. • expression that seems mundane and general; slang, if used, does not seem purposeful and is not effective. • attempts at colorful language that seem overdone or forced. • words that are accurate for the most part, although misused words may occasionally appear, technical language or jargon may be overused or inappropriately used. • reliance on clichés and overused expressions. 	<p>2</p> <p>Language is monotonous and/or misused, detracting from the meaning and impact. The writing is characterized by</p> <ul style="list-style-type: none"> • words that are colorless, flat or imprecise. • monotonous repetition or overwhelming reliance on worn expressions that repeatedly distract from the message. • images that are fuzzy or absent altogether. 	<p>1</p> <p>The writing shows an extremely limited vocabulary or is so filled with misuses of words that the meaning is obscured. Only the most general kind of message is communicated because of vague or imprecise language. The writing is characterized by</p> <ul style="list-style-type: none"> • general, vague words that fail to communicate. • an extremely limited range of words. • words that simply do not fit the text; they seem imprecise, inadequate, or just plain wrong.

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SENTENCE FLUENCY

<p>6</p> <p>The writing has an effective flow and rhythm. Sentences show a high degree of craftsmanship, with consistently strong and varied structure that makes expressive oral reading easy and enjoyable. The writing is characterized by</p> <ul style="list-style-type: none"> • a natural, fluent sound; it glides along with one sentence flowing effortlessly into the next. • extensive variation in sentence structure, length, and beginnings that add interest to the text. • sentence structure that enhances meaning by drawing attention to key ideas or reinforcing relationships among ideas. • varied sentence patterns that create an effective combination of power and grace. • strong control over sentence structure; fragments, if used at all, work well. • stylistic control; dialogue, if used, sounds natural. 	<p>5</p> <p>The writing has an easy flow and rhythm. Sentences are carefully crafted, with strong and varied structure that makes expressive oral reading easy and enjoyable. The writing is characterized by</p> <ul style="list-style-type: none"> • a natural, fluent sound; it glides along with one sentence flowing into the next. • variation in sentence structure, length, and beginnings that add interest to the text. • sentence structure that enhances meaning. • control over sentence structure; fragments, if used at all, work well. • stylistic control; dialogue, if used sounds natural. 	<p>4</p> <p>The writing flows; however, connections between phrases or sentences may be less than fluid. Sentence patterns are somewhat varied, contributing to ease in oral reading. The writing is characterized by</p> <ul style="list-style-type: none"> • a natural sound; the reader can move easily through the piece, although it may lack a certain rhythm and grace. • some repeated patterns of sentence structure, length, and beginnings that may detract somewhat from overall impact. • strong control over simple sentence structures, but variable control over more complex sentences; fragments, if present, are usually effective. • occasional lapses in stylistic control; dialogue, if used, sounds natural for the most part, but may at times sound stilted or unnatural.
<p>3</p> <p>The writing tends to be mechanical rather than fluid. Occasional awkward constructions may force the reader to slow down or reread. The writing is characterized by</p> <ul style="list-style-type: none"> • some passages that invite fluid oral reading; however, others do not. • some variety in sentences structure, length, and beginnings, although the writer falls into repetitive sentence patterns. • good control over simple sentence structures, but little control over more complex sentences; fragments, if present, may not be effective. • sentences which, although functional, lack energy. • lapses in stylistic control; dialogue, if used, may sound stilted or unnatural. 	<p>2</p> <p>The writing tends to be either choppy or rambling. Awkward constructions often force the reader to slow down or reread. The writing is characterized by</p> <ul style="list-style-type: none"> • significant portions of the text that are difficult to follow or read aloud. • sentence patterns that are monotonous (e.g., subject-verb or subject-verb-object). • a significant number of awkward, choppy, or rambling constructions. 	<p>1</p> <p>The writing is difficult to follow or to read aloud. Sentences tend to be incomplete, rambling, or very awkward. The writing is characterized by</p> <ul style="list-style-type: none"> • text that does not invite—and may not even permit—smooth oral reading. • confusing word order that is often jarring and irregular. • sentence structure that frequently obscures meaning. • sentences that are disjointed, confusing, or rambling.

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CONVENTIONS

<p>6</p> <p>The writing demonstrates exceptionally strong control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage) and uses them effectively to enhance communication. Errors are so few and so minor that the reader can easily skim right over them unless specifically searching for them. The writing is characterized by</p> <ul style="list-style-type: none"> • strong control of conventions; manipulation of conventions may occur for stylistic effect. • strong, effective use of punctuation that guides the reader through the text. • correct spelling, even of more difficult words. • paragraph breaks that reinforce the organizational structure. • correct grammar and usage that contribute to clarity and style. • skill in using a wide range of conventions in a sufficiently long and complex piece. • little or no need for editing. 	<p>5</p> <p>The writing demonstrates strong control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar, and usage) and uses them effectively to enhance communication. Errors are so few and so minor that they do not impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • strong control of conventions. • effective use of punctuation that guides the reader through the text. • correct spelling, even of more difficult words. • paragraph breaks that reinforce the organizational structure. • correct capitalization; errors, if any, are minor. • correct grammar and usage that contribute to clarity and style. • skill in using a wide range of conventions in a sufficiently long and complex piece. • little need for editing. 	<p>4</p> <p>The writing demonstrates control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage). Minor errors, while perhaps noticeable, do not impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • control over conventions used, although a wide range is not demonstrated. • correct end-of-sentence punctuation, internal punctuation may sometimes be incorrect. • spelling that is usually correct, especially on common words. • basically sound paragraph breaks that reinforce the organizational structure. • correct capitalization; errors, if any, are minor. • occasional lapses in correct grammar and usage; problems are not severe enough to distort meaning or confuse the reader. • moderate need for editing.
<p>3</p> <p>The writing demonstrates limited control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage). Errors begin to impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • some control over basic conventions; the text may be too simple to reveal mastery. • end-of-sentence punctuation that is usually correct; however, internal punctuation contains frequent errors. • spelling errors that distract the reader; misspelling of common words occurs. • paragraphs that sometimes run together or begin at ineffective places. • capitalization errors. • errors in grammar and usage that do not block meaning but do distract the reader. • significant need for editing. 	<p>2</p> <p>The writing demonstrates little control of standard writing conventions. Frequent, significant errors impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • little control over basic conventions. • many end-of-sentence punctuation errors; internal punctuation contains frequent errors. • spelling errors that frequently distract the reader; misspelling of common words often occurs. • paragraphs that often run together or begin in ineffective places. • capitalization that is inconsistent or often incorrect. • errors in grammar and usage that interfere with readability and meaning. • substantial need for editing. 	<p>1</p> <p>Numerous errors in usage, spelling, capitalization, and punctuation repeatedly distract the reader and make the text difficult to read. In fact, the severity and frequency of errors are so overwhelming that the reader finds it difficult to focus on the message and must reread for meaning. The writing is characterized by</p> <ul style="list-style-type: none"> • very limited skill in using conventions. • basic punctuation (including end-of-sentence punctuation) that tends to be omitted, haphazard, or incorrect. • frequent spelling errors that significantly impair readability. • paragraph breaks that may be highly irregular or so frequent (every sentence) that they bear no relation to the organization of the text. • capitalization that appears to be random. • a need for extensive editing.

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AIMS HS Mathematics Reference Sheet

	Area
Triangle	$A = \frac{1}{2}bh$
Rectangle	$A = lw$
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$

Key	
b = base	d = diameter
h = height	r = radius
l = length	ℓ = slant height
w = width	B = Area of base
	P = Perimeter of base
Use 3.14 or $\frac{22}{7}$ for π .	

$$\text{Circumference} = \pi d = 2\pi r$$

	Volume
Right Circular Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$
Sphere	$V = \frac{4}{3}\pi r^3$
Right Circular Cylinder	$V = \pi r^2 h$
Rectangular Solid	$V = Bh$

Total Surface Area

$$T = \frac{1}{2}(2\pi r)\ell + \pi r^2 = \pi r\ell + \pi r^2$$

$$T = B + \frac{1}{2}P\ell$$

$$T = 4\pi r^2$$

$$T = 2\pi rh + 2\pi r^2$$

$$T = 2B + Ph$$

Linear Equation Forms

Point-Slope Form:

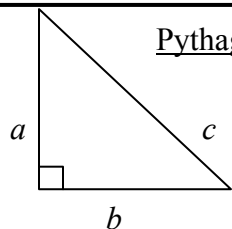
$$y - y_1 = m(x - x_1)$$

Standard or General Form:

$$Ax + By = C$$

Slope-Intercept Form:

$$y = mx + b$$



Pythagorean Theorem:

$$c^2 = a^2 + b^2$$

Coordinate Geometry

Given: Points $A(x_1, y_1)$, $B(x_2, y_2)$

Distance between two points

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint between two points

$$\text{Midpoint of } \overline{AB} = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$$

Slope between two points

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{Quadratic Formula: } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

AIMS HS Mathematics Reference Sheet

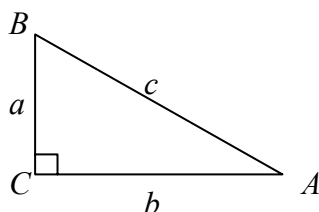
Sum of the measures of the interior angles of a convex polygon with n -sides: $S = (n - 2)(180^\circ)$	Distance, rate, time formula, where d = distance, r = rate, t = time: $d = rt$
Permutations of n objects taken r at a time: ${}_nP_r = \frac{n!}{(n-r)!}$	Combinations of n objects taken r at a time: ${}_nC_r = \frac{n!}{(n-r)!r!}$

Special Right Triangle Relationships

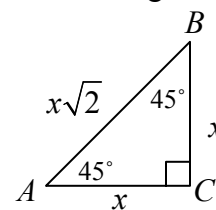
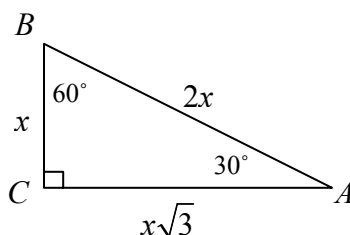
Trigonometric Ratios

30°-60°-90° Triangle Relationships

45°-45°-90° Triangle Relationships



$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$



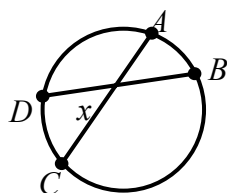
Additional Formulas

Area of a sector:

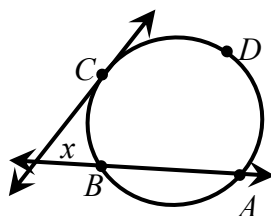
$$A = \pi r^2 \frac{\text{degrees in corresponding arc}}{360^\circ}$$

Length of a circular arc:

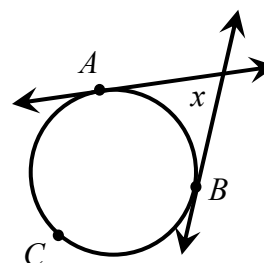
$$\text{Length of } \widehat{AB} = 2\pi r \frac{m\widehat{AB}}{360^\circ}$$



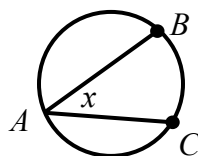
$$m\angle x = \frac{1}{2}(m\widehat{AB} + m\widehat{CD})$$



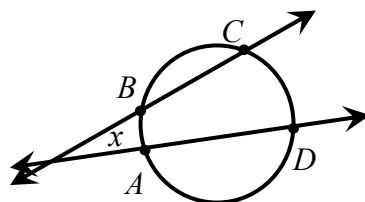
$$m\angle x = \frac{1}{2}(m\widehat{ADC} - m\widehat{BC})$$



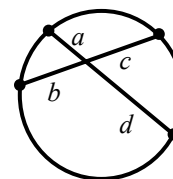
$$m\angle x = \frac{1}{2}(m\widehat{ACB} - m\widehat{AB})$$



$$m\angle x = \frac{1}{2}m\widehat{BC}$$



$$m\angle x = \frac{1}{2}(m\widehat{CD} - m\widehat{AB})$$



$$\frac{a}{b} = \frac{c}{d}$$

Test-Taking Strategies

A REVIEW

- **Be physically prepared.** Get plenty of rest the night before. On the day of the test, eat a healthy breakfast.
- **Be mentally prepared.** Try to relax and do your best. View the test as an opportunity to truly show what you know and are able to do.
- **Listen to directions** as the teacher explains them. **Ask** about any directions you do not understand.
- **Read the directions carefully.**
- **Look for key words** that will help you identify what the question is asking you to do.
- **Take your time** and work at your own pace. **AIMS is not a timed test**, but you do want to use your time well.
- **Move on** to the next item if you are stuck. **Be sure to return** to it later.
- **Make educated guesses** if you are unsure of an answer. First eliminate choices that are obviously incorrect, then logically select from the remaining choices.
- **Take the time to review your answers** when you are finished. **Re-read** your written response to check that it is clear.

NOTES